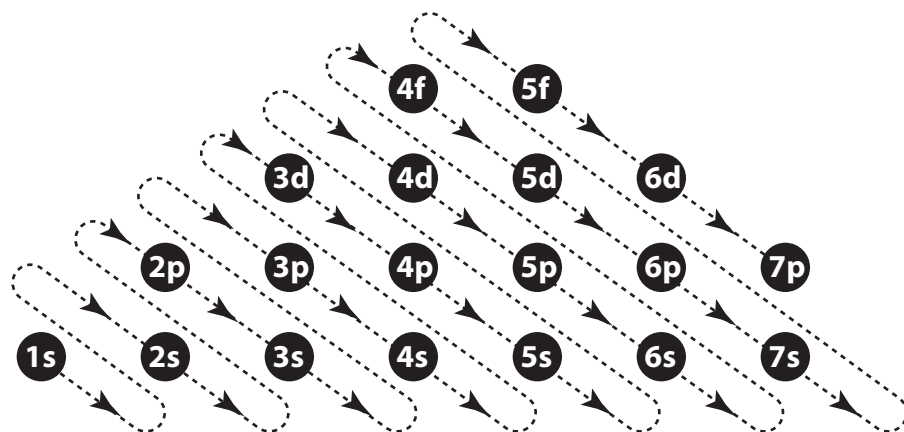


Bohr Model

1st Energy Level	2 electrons
2nd Energy Level	8 electrons
3rd Energy Level	18 electrons
4th Energy Level	32 electrons
5th Energy Level	32 electrons
6th Energy Level*	18 electrons
7th Energy Level*	8 electrons

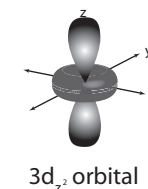
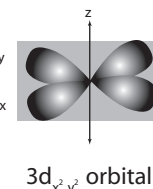
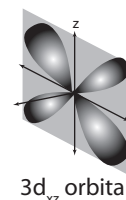
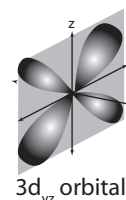
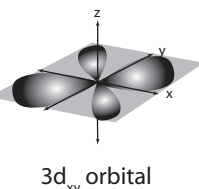
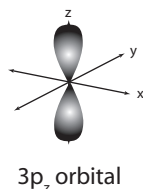
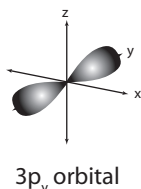
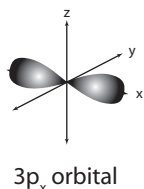
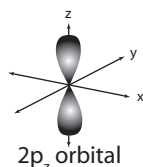
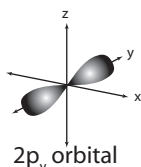
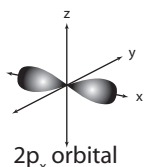
* Not shown



Electron Configuration Aufbau Principle

s = 2 electrons
p = 6 electrons
d = 10 electrons
f = 14 electrons

1s - 2s - 2p - 3s - 3p - 4s - 3d - 4p - 5s - 4d - 5p - 6s - 4f - 5d - 6p - 7s - 5f - 6d - 7p → Electron filling order



Orbital Shapes

Pauli Principle
Each orbital holds 2 electrons

Electron Spin

Hund's Rule
An electron will fill each energy level orbital before it fills the alternate spin in the same energy level and orbit



3s orbital



3p_x orbital



3p_y orbital



3p_z orbital



3d_{xy} orbital



3d_{yz} orbital



3d_{xz} orbital

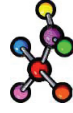
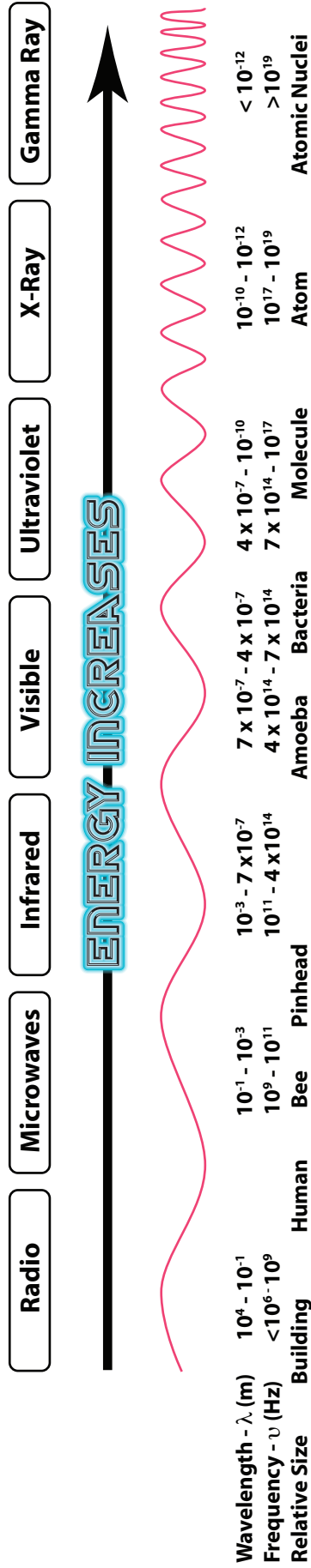


3d_{x²-y²} orbital



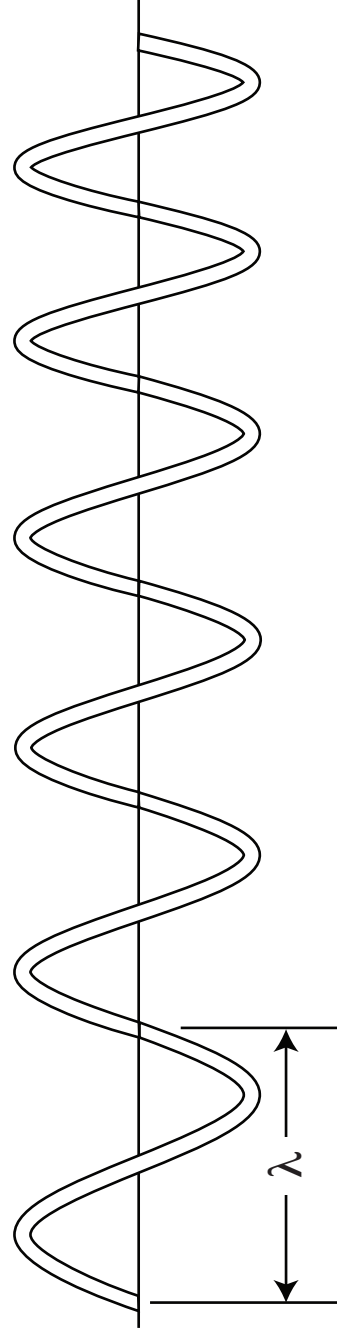
3d_{z²} orbital

Electromagnetic Waves



Visible Light

Color	Wavelength - λ (nm*)	Frequency - ν (THz**)	Red	Orange	Yellow	Green	Blue	Violet
	780 - 622	622 - 597	597 - 577	577 - 492	492 - 455	455 - 390		
	384 - 482	482 - 503	503 - 520	520 - 610	610 - 659	659 - 769		



*nm = 10^{-9} m
** THz = 10^{12} Hz